

GOES-R/JPSS Program



CIMSS/ASPB Participation GOES-R/JPSS Proving Ground Status

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January 14, 2013





- Demonstration of Satellite PG applications at National Center Testbeds/Demonstrations and NWS WFO
- AWIPS-2 status
- AMS Annual meeting 2013
- Upcoming meetings/conferences



Satellite Liaison: Chris Siewert

- Continue distribution of GOES-R Proxy for Nearcasting, UW-CTC, WRF synthetic imagery, Fire intensity detection
- Continue streamlining formats for AWIPS-2
- Plan for HWT 2013 collaborations
- Pending approval of HWT testbed plan by NOAT governance process other products will be added
- **UW-CIMSS satellite applications “Boot Camp” will be held 8-19 July 2013**



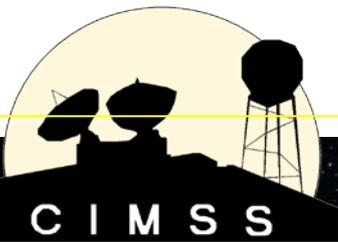
Satellite Liaison: Amanda Terborg

- **UW-CTC, Overshooting-tops, Fog/low cloud, cloud phase, cloud height, and WRF simulated ABI radiance products are available via LDM and can be viewed in N-AWIPS and had been evaluated at AWT**
- **Pending approval by NOAT governance process for Feb demo:**
 - **Collaborating with Bill Smith Jr regarding availability of icing product to AWC – Cross correlation between LaRC driven cloud inputs and GOES-R baseline cloud input**
 - **Coordination is occurring with regard to providing turbulence/icing for next testbed demonstration**
- **VIIRS data now available for AWC use**
- **Coordination of Overshoot research AWC and LaRC**



Satellite Liaison: Chad Gravelle

- **The AWG fog/low cloud products have been mentioned in at least 26 AFD's (difficult to track because of product naming inconsistencies)**
 - Training update Scott Lindstrom
- **Timeline for evaluation of AWG fog/low cloud products in Operational PG needs to be established**
- **Do we need to submit a proposal for fog/low clouds to the Operations PG announcement of opportunity?**
- **2012 MKX experiment completed – report is being written**
- **Exploring possibility of convective Cloud-Top Cooling WFO PG demo within “convective-initiation toolbox”**
- **Assisted in distributing VIIRS bands (including DNB) to local WFO, Monterey**
- **Working through NWS TC regarding content of NWS TC Proving Ground AO and how it relates to ongoing GOES-R PG activities**



4) Alaska/AAWU/High Latitude Testbed

- **Automated ash cloud alerts from AVHRR and MODIS will be provided to the VAAC and CWSU soon (training needs to be updated first).**
- **We have not received any feedback on the fog/low cloud products in the last couple of months. We are not sure how to maintain “momentum” in AK.**
- **VIIRS NetCDF files verified to be AWIPSII compatible**
- **VIIRS VISIT NWS training module under development**
- **Polar2grid tool being expanded for GEOCAT AK products**



Satellite Liaison: Roy Huff

- **UW-CTC, Morphed Total Precipitable Water, and Overshooting-top decision support products are now available at NWS Honolulu AWIPS platforms**
- **Jordan and Wayne visited PRH, Honolulu NWS WFO, and U of Hawaii December 4-12, 2012:**
 - 2013 Pacific Testbed plan discussion and write-up, updated plan for further PG decision support data access pending plan approval by Bill Ward and NOAT
 - Coordinate DB antenna internet access to PRH/Honolulu WFO
 - Provide insight regarding testbed operation and roles based upon experiences with other testbeds/demonstrations
 - Other GOES-R PG decision support products requested within testbed plan available once approved by NOAT governance process
- **Volcanic ash and SO₂ (from MODIS) will be made available (*Spring 2013*)**



Satellite Liaison: Michael Folmer

- **UW-CIMSS providing Overshooting-Top/Enhanced-V products (same methods as SPC delivery), N-AWIPS displayed at OPC**
- **Cloud top height, phase, and temperature from GOES imager are in progress for display within N-AWIPS and AWIPS**
- **The Washington VAAC is now receiving SEVIRI based GOES-R volcanic ash products via a McIDAS ADDE server and automated alerts will soon be distributed**
- **GOES sounder TWP (new operational version) being made available**
- **S-NPP VIIRS data has been made available via N-AWIPS for HPC, OPC, and SAB**
- **Other GOES-R PG decision support products requested within plan available once approved by NOAT governance process**



On 19 Dec 2012, the NESDIS SPSRB approved moving the new CIMSS-developed retrieval algorithm (Li et al, 2008) into operations within 45 days. The previous version (Ma et al, 1999) is what forecasters currently have available, within routine AWIPS, for GOES Sounder moisture and

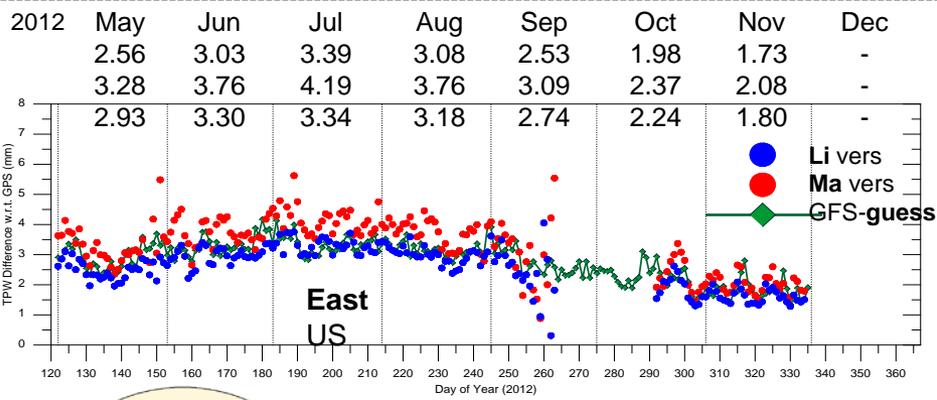
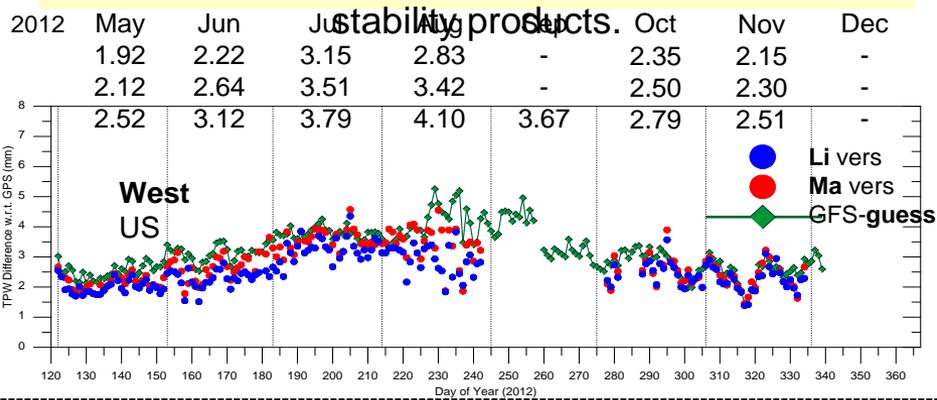
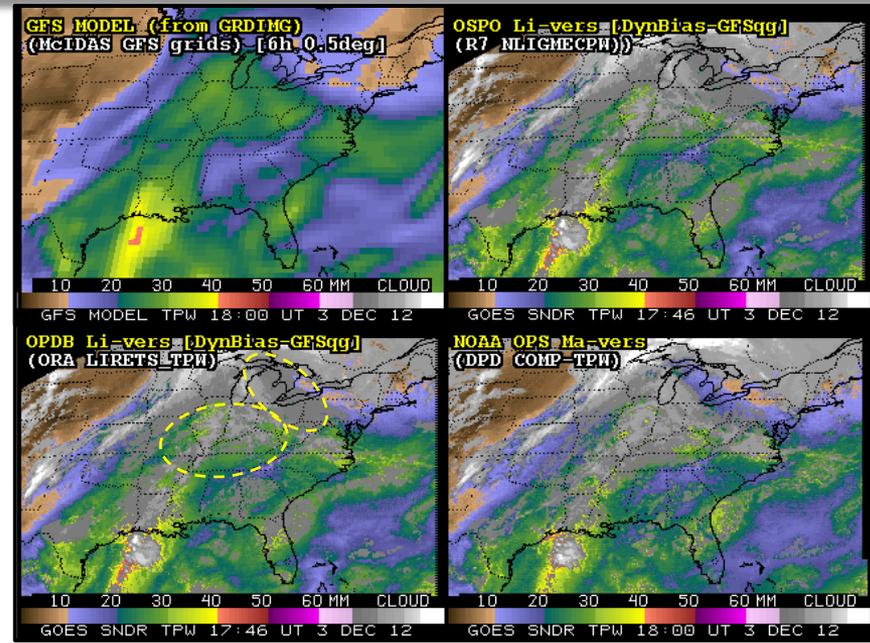


Exhibit 1: Compared to GPS-Met TPW (from ESRL), standard deviation (SD) of the **Li** version TPW notably improved upon that of the **Ma** version, and generally also improved upon the



Example of GOES TPW DPI at 1746 UT on 03 Dec 2012 along with GFS model forecast first-guess.

Exhibit 2: Note how the new version (**Li – upper right**) handles clouds better (as across central Great Lakes) and has less shot noise (as through mid MS Val and OH Val) than the old version (**Ma – lower right**)

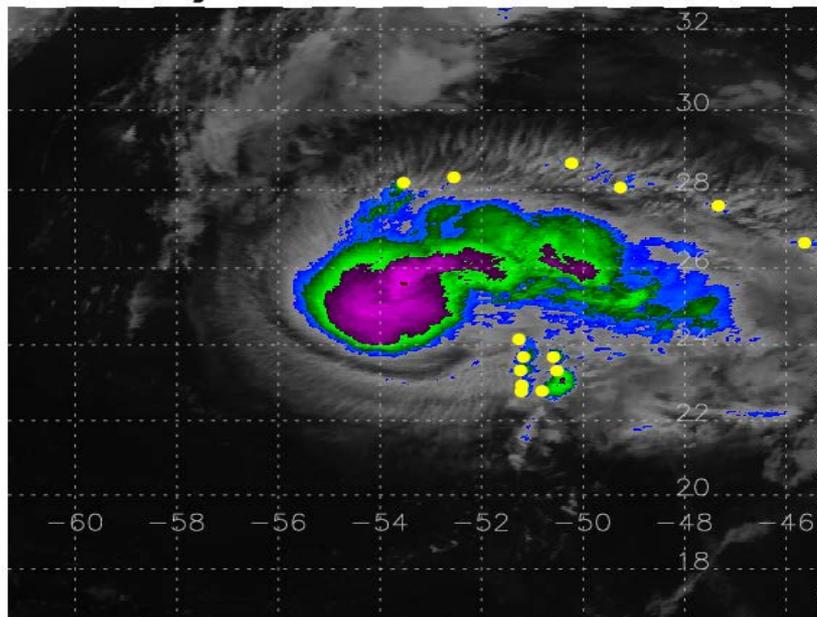
The Li version for the current GOES Sounder is based on the same radiative transfer code to be used for the “**legacy soundings**” from the **GOES-R ABI**. *Efforts to improve the quality and utilization of current GOES Sounder products remain relevant, as such work will only improve*

- ***Hurricane Intensity Estimate (HIE) Algorithm***
Calculates tropical cyclone intensity (MSLP and max surface wind) objectively from proxy ABI IR-window channel imagery.
- ***Tropical Overshooting Tops (TOTs)***
Employs IR-window channel imagery to identify convective protrusions above cumulonimbus anvils associated with very strong tropical convection updrafts, which can be related to tropical cyclone formation and intensification. Could also be important for marine and aviation applications.
- ***Saharan Air Layer (SAL) Product***
Uses a split window (10.8 and 12.0 μm) algorithm to identify and track dusty dry air masses (SAL), which can negatively impact tropical cyclone activity.

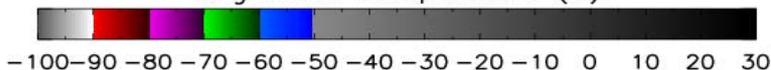


Issue: During the 2012 hurricane PG demonstration, a few false TOTs were noted by NHC/TAFB on the cirrus outflow edge of Nadine.

IR Image and TOTs: 20120914 at 0015 UTC

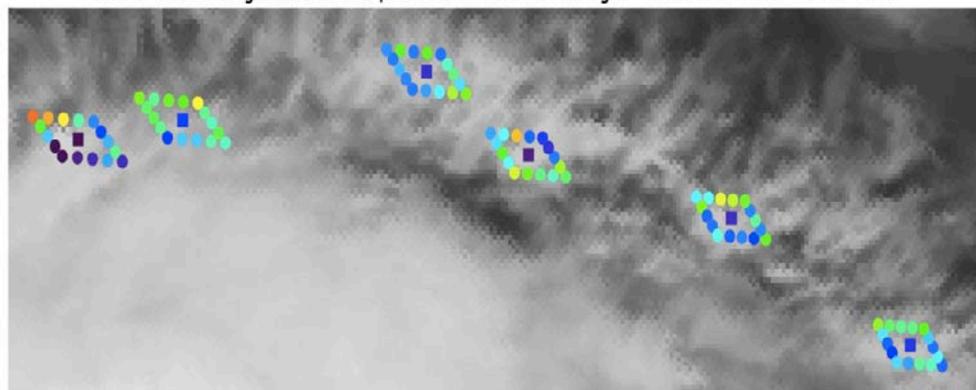


Brightness Temperature (C)

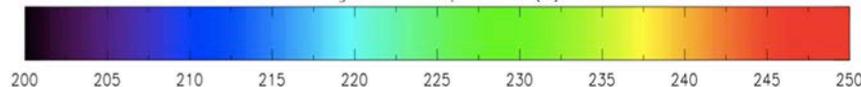


Hypothesis: The banding/striated nature of the cirrus outflow in this case allows for anvil-TOT BTs and differences to be within "allowable" thresholds.

Anvil Pixel Brightness Temperature and IR Image: 20120914 at 0015 UTC



Brightness Temperature (K)



Mitigation Strategy: Introduce a QC check for allowable cloud emissivity thresholds at the TOT location.



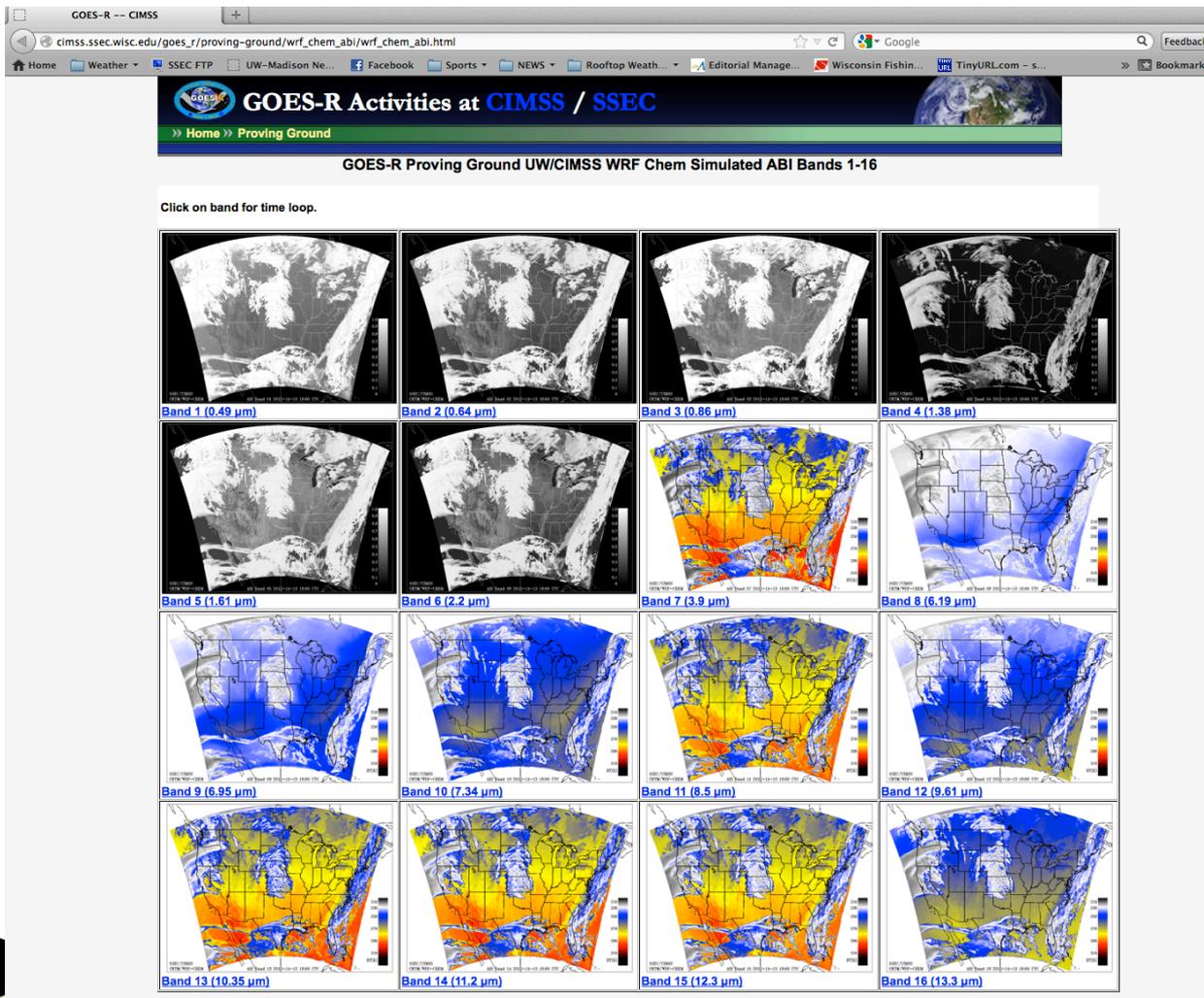
8) NWS WFO Demonstrations

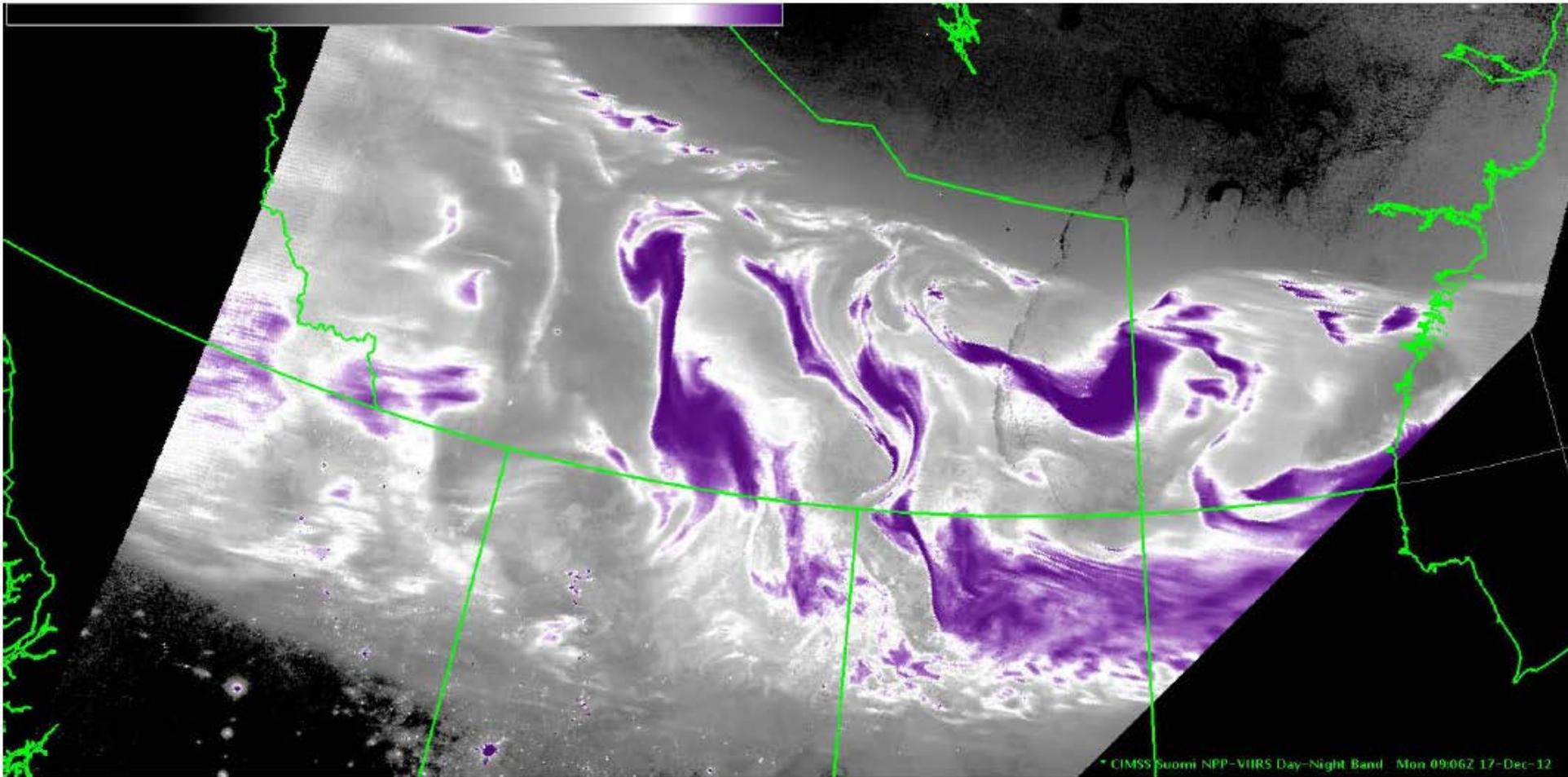


- **CIMSS GOES-R Local Area Demonstration with MKX in progress (began mid June and will continue through mid November) – Year 4**
- **2012 activities completed report in progress**
- **2013 activities plan in progress**



http://cimss.ssec.wisc.edu/goes_r/proving-ground/wrf_chem_abi/wrf_chem_abi.html





Aurora borealis over Canada as detected by VIIRS, in AWIPS II (color enhanced)

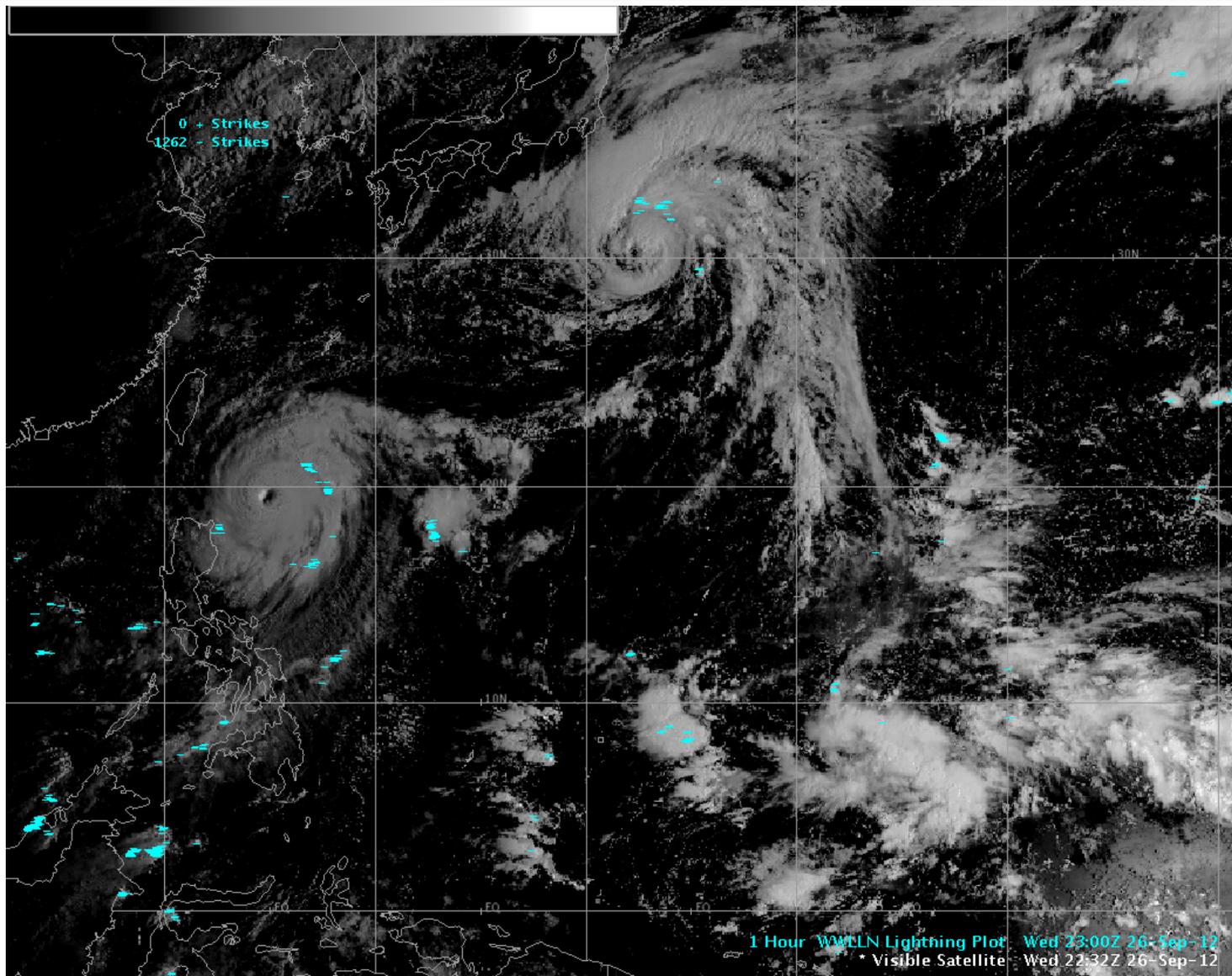
- **Recent Work:**

- Participation in AMS annual meeting
- Attending AWIPS II developers' forum conference calls, discussions pertaining to the GOES-R Proving Ground, and meetings of the EPDT
 - Participation within EPDT should be expanded
- Completed implementation of updated lightning ingest and visualization plug-ins at Pacific Region Headquarters
 - In the process of submitting documentation for design review
- Completed implementation of updated satellite visualization resource configuration for Pacific Region (highest resolution as available)
- Investigating performance of regionalsat plug-in
- Enhancement written for scaling byte array to real numbers via XML
- Preparing for new X/L-band antenna installation at Ford Island
- Informed of issue with OB13.1.2 McIDAS decoder



The World Wide Lightning Location Network (WWLLN) provides lightning information across the entire Pacific Basin. CIMSS wrote the plug-in to display this data in AWIPS II.

Image credit: Eric Lau



- **Short-term Priorities:**

- Obtain Common Access Card and access to Dimensions
- Write discrepancy reports for AWIPS II
- Review new netCDF4 files to assess format of new operational VIIRS imagery delivery
- Document FLS and CTCR ingest and display for WFO sites using AWIPS II
- Expand suite of Hawaii DB antenna products into AWIPS II at PRH/HFO
- Continue to work on resolving AWIPS II issues with NWS Sullivan (MKX)

- **Long-term Priorities:**

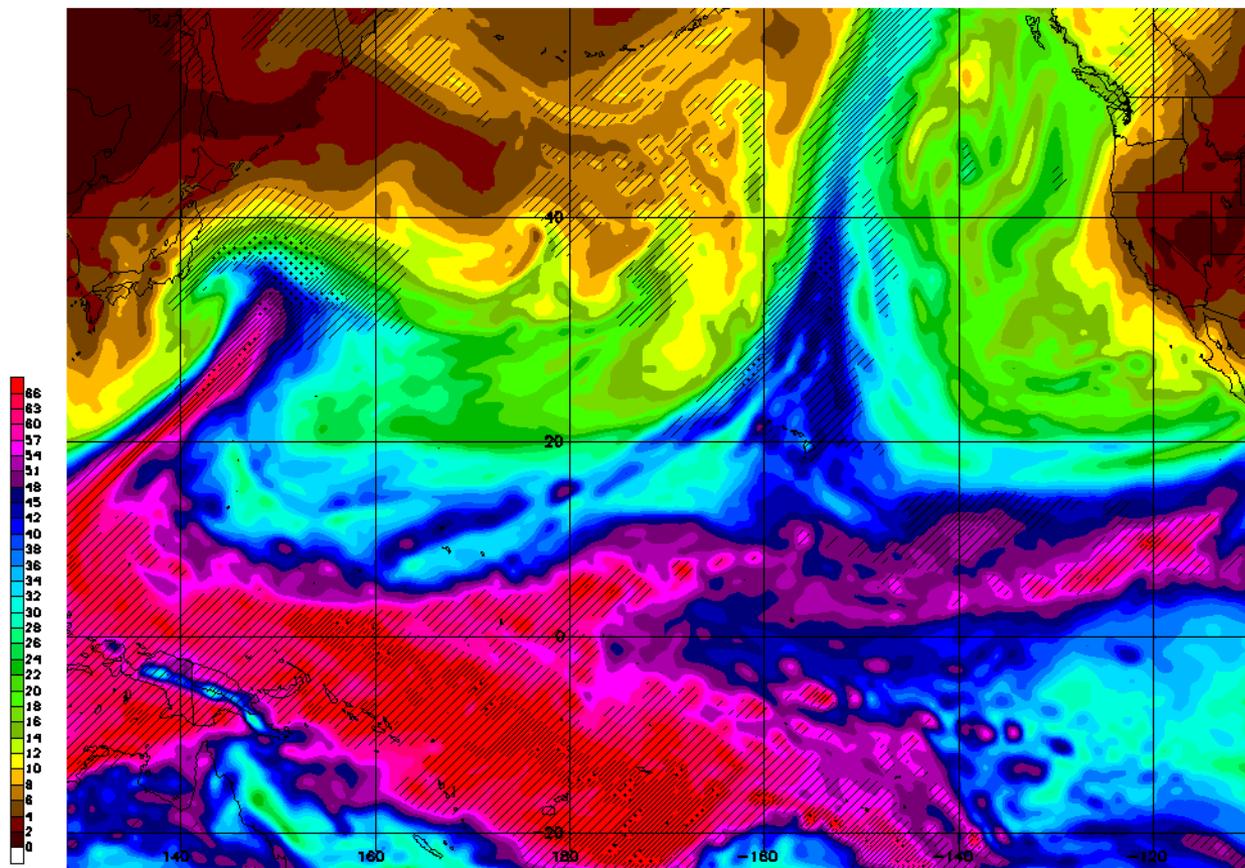
- Confirm all CIMSS AWIPS I imagery/products are AWIPS II compliant
- Complete transition from AWIPS I to AWIPS II on all workstations at CIMSS



The CRAS domain was expanded at the request of NWS Pacific Region. The new domain adds grid columns to the west of Palau (to 128 deg E) and grid rows to the south of American Samoa (to 24 deg S).

CIMSS is working with HFO to adjust the domain in AWIPS. In the interim, both domains are available via the LDM.

130114/1200V024 CRAS SFC TOTAL PRECIPITABLE WTR (MM) WITH PL BNDRY LYR RH >=70 (BROAD), >=90 (TIGHT), >=99 (DOTS) PCT



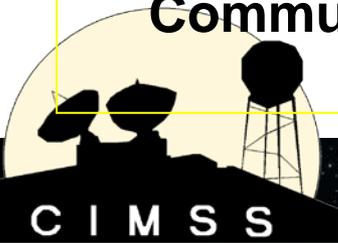
01/13/2013 12UTC 024HR FCST VALID MON 01/14/2013 12UTC CIMSS/DRA/NESDIS/NOAA

EXPERIMENTAL



Direct Broadcast VIIRS in AWIPS

- **VIIRS data from Direct Broadcast is now being used in HI, AK, and CONUS**
- **Community Satellite Processing Package (CSPP) software converting data to standard h5**
- **Polar2grid software reformatting and reprojecting data to AWIPS I and II NetCDF**
- **Evidence from AFDs and Satellite Discussions that data is being used in all regions**
- **Scott Bachmeier working on VISITview Teletraining module “VIIRS in AWIPS”**
- **Liam Gumley and Kathy Strabala presented the JPSS Science Seminar in Greenbelt, MD on 17 December: “Status of the Community Satellite Processing Package and User Outreach”**



Marc Kavinsky, Forecaster at MKE issued this Blog on 25 November

Personal MODIS DB Wx JPSS Technical

The GOES-R Proving Ground at the Hazardous Weather Testbed

Sunday, November 25, 2012

Day/Night Band Provides Better Detail of Low Clouds

During the overnight hours of 23-24 November, 2012, persistent stratus and flurries lingered over much of Wisconsin in the wake of a strong cold front which had swept through the previous day. As indicated by the below Green Bay 00z sounding, the stratus was shallow and only several hundred feet thick. Cloud bases were 2 to 3 thousand feet.

00z 24 Nov 2012

The short-term forecast concern was timing of the cloud erosion. The below CONUS wide view 11-3.9 micron imagery from 08z 24 Nov indicated widespread clouds blanketing most of Wisconsin and the western Great Lakes.

Links

- [GOES-R Homepage](#)
- [GOES-R Proving Ground](#)
- [NOAA's Storm Prediction Center](#)
- [NOAA's Hazardous Weather Testbed](#)
- [Experimental Forecast Program](#)
- [EFP Blog](#)
- [Experimental Warning Program](#)
- [EWP Blog](#)
- [NSSL Realtime WRF model forecasts](#)
- [UW-CIMSS Satellite Blog](#)
- [RAMMB GOES-R Proving Ground Blog](#)

Blog Archive

- ▼ 2012 (239)
 - ▼ November (2)
 - [Day/Night Band Provides Better Detail of Low Cloud...](#)
 - [Using GOES-R IER/LIER Probabilities for TAFs](#)
 - ▶ October (1)
 - ▶ September (1)
 - ▶ August (2)

- The GOES-R Proving Ground 2012 Summer Experiment at the Aviation Weather Center, Amanda M. Terborg, CIMSS/Univ. of Wisconsin, Kansas City, MO; and C. M. Gravelle
- The GOES-R Proving Ground 2012 Aviation Weather Testbed Summer Experiment – **J2.4 Case Studies** Chad M. Gravelle, CIMSS - High Impact WX
- High Latitude Satellite-derived Winds: Use and Impact Over the Last Decade David A. Santek, CIMSS/Univ. of Wisconsin; Jeffrey R. Key, NOAA/NESDIS/ORA
- Integrated GOES-R GLM/ABI Approaches for the Detection and Forecasting of Convectively Induced Turbulence Wayne F. Feltz, CIMSS/Univ. of Wisconsin, Madison, WI; and L. Carey, K. Bedka, R. H. Rogers, S. A. Monette, and C. Fleeger
- Applications of Satellite Data to Aircraft Turbulence Sarah A. Monette, CIMSS/Univ. of Wisconsin, Madison, WI; and K. Bedka and W. F. Feltz
- Further methods for identifying turbulence within satellite gravity wave signatures Anthony Wimmers, CIMSS/Univ. of Wisconsin, Madison, WI; and W. F. Feltz and S. A. Monette
- Leveraging the GOES-R Proving Ground Process and Forecaster Feedback to Improve GOES-R products and Training Material
- Scott S. Lindstrom, Univ. of Wisconsin, Madison, WI; and W. Feltz, S. Bachmeier, J. Sieglaff, L. Cronce, C. Calvert, and M. J. Pavolonis
- The ingredients for sustaining success in NOAA R2O for GOES-R Jordan J. Gerth, CIMSS/Univ. of Wisconsin, Madison, WI



2013

- High Impact WX 6-8 February Norman, OK
- Virtual Science Week 17-23 March Telcon
- NSC (DRC/GUC) 8-12 April College Park, MD
- O-CONUS 17-21 June Fairbanks, Alaska
- EUMETSAT/AMS 16-20 Sept Vienna, Austria
 - http://www.eumetsat.int/Home/Main/News/Conferences_and_Events/820209?l=en